

CARE NEPAL
CHILD SURVIVAL XV PROJECT

KNOWLEDGE, PRACTICE AND COVERAGE
BASELINE SURVEY IN
KANCHANPUR DISTRICT

JANUARY 2000

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EXECUTIVE SUMMARY

Background and Objectives of the Study

CARE-Nepal initiated its first Child Survival Project (CS XV) in September 30, 1999 in 19 Village Development Committees (VDCs) and one Municipality of Kanchanpur District, located in Far Western Development Region of Nepal. This Child Survival Project is being supported by USAID for a period of four years. The project will implement activities in five intervention areas: diarrhea case management, pneumonia case management, malaria, nutrition and maternal health. The project will cover the entire population of the district for most of its intervention. The target population of the project is approximately 53,304 children under five years of age and 66,630 women of reproductive age.

In January 2000, the Knowledge, Practice and Coverage (KPC) baseline survey was carried out in the project area. The main objectives of the baseline survey were as follows:

- 1) To gather quantitative baseline information on mothers' and children's health in five key intervention areas of the project (Diarrhea Case management, Pneumonia Case Management, Malaria, Nutrition/ Breastfeeding and Maternal and Newborn Care) and
- 2) To provide basic data for developing Detailed Implementation Plan (DIP) of the Child Survival project in Kanchanpur District.

Survey Methodology and Data Analysis

In this survey, 30 cluster sampling technique was used. The study population consisted of the mothers of children under 24 months of age living in the project area. Ten households were selected in each of the 30 randomly selected wards (cluster sites), following the process described in EPI coverage Training Manual (WHO, Geneva, October 1998). A total of 300 mothers with children 0-23 months of age were interviewed in 19 Village Development Committees and one Municipality of Kanchanpur District.

A team of 25 interviewers and 5 supervisors participated in a four-day training program prior to the survey. The survey questionnaire was designed at the Child Survival Project office in Kanchanpur and was based on the generic KPC questionnaire developed by the PVO Child Survival Technical Support Project. It was field tested and revised during the training. The survey was conducted over four days, from January 7-10, 2000.

All the interviewers and supervisors were involved in manual data tabulation. The data was also entered in EPI Info program and cross-checked with manual tabulation.

Major Findings:

Demographic and Socio-economic Characteristics of the Sample

- ◆ Mean age of mothers is 24.3 years.
- ◆ Nearly 31 percent of mothers are literate.
- ◆ Approximately, 87 percent of mothers do not have any other source of income outside home.
- ◆ Mean age of the children in the survey is 9.8 months.
- ◆ Nearly 46 percent of mothers reported that their mothers in law took care of the child when they are away from home. Another percent said that they left their children with fathers in law.

Breastfeeding/Nutrition

- ◆ All mothers (100%) said that they had breastfed their child in the past and 97 percent of them were currently breastfeeding.
- ◆ Ninety percent mothers initiated breastfeeding within 8 hours of birth.
- ◆ Most mothers (73%) reported that they gave the first yellow milk (colostrum) to the child, within the 3 day after delivery.
- ◆ Sixty-six percent of mothers practiced exclusive breastfeeding for at least 4 months. Similarly, 40 percent of mothers exclusively breastfed their children for at least 6 months.
- ◆ Forty two percent of mothers said that additional foods should be given at 6 months of age.
- ◆ Nine percent of mothers told that green vegetables should be given as additional food to the child. Most of the mothers (49%) mentioned that rice should be given as additional food either alone or combining with other foods such as lentils, bread, milk etc.
- ◆ Seventeen percent of children of 6 to 24 months of age consumed three or more cereal based diet in addition to breastmilk, in last 24 hours.
- ◆ Only four percent children consumed meat, fish or eggs for 7 or more times in last 7 days.
- ◆ Around 55 percent children of 6 to 24 months of age consumed vegetables, yellow fruits and other foods rich in Vitamin A for at least 3 times a week. Thirty five percent children consumed green vegetables for 7 or more times in last 7 days.
- ◆ Approximately 79 percent children of 6 to 24 months of age received high potency Vitamin A supplement within last six months.
- ◆ Only about 8 percent of mothers knew about *Sarbottam Pitho* (home made multi mix porridge).
- ◆ Nearly 8 percent of newborn babies were weighed after birth.
- ◆ Approximately, 24 percent of children are stunted (<-2 sd height for age) and of them, 10% are severely stunted (<-3 sd). The problem is most serious among children 18-23 months of age (60% stunted).
- ◆ Around 16 percent of the children are wasted (<-2 sd weight for age) and of them, five percent are severely wasted (<-3 sd). The level of wasting increases from 10 percent among children 6 months of age and peaks at 24% among 12-17 months of age.

- ◆ Approximately, 26 percent of children are underweight (<-2 sd weight for age) and of them 9% are severely underweight (<-3 sd).
- ◆ Around four percent children are both stunted and wasted and of them, less than one percent are severely wasted and stunted.
- ◆ Nearly, 46 percent of mothers are anemic (hemoglobin concentration: < 11 g/DL) and of them 4% are severely anemic (< 4 gm/dL hemoglobin concentration).
- ◆ Twenty two percent of mothers are of inadequate nutritional status based on mid-upper arm circumference measurements (<22 cm).

Control of Diarrheal Diseases

- ◆ 85 percent of mothers knew the correct definition of diarrhea.
- ◆ Over 28% mothers told that their children had diarrhea within the last two weeks.
- ◆ Only two percent mothers told that they used Oral Rehydration Solution to treat the diarrhea.
- ◆ Approximately 80% of children, who had diarrhea, were given breastmilk more or the same amount as usual.
- ◆ Only 34 percent of mothers reported that they provided more or same fluid as usual to the child suffering from diarrhea.
- ◆ Approximately, 52 percent of children suffering from diarrhea were given same or more solid and semi-solid foods during the diarrheal episode.
- ◆ Around 50 percent mothers told that they sought advice when the child was suffering from diarrhea. Of those, who took advice, 37 percent went to private pharmacy and only around 23 percent went to the government health facilities.
- ◆ Nearly 26 percent mothers knew two signs of severe diarrhea. Similarly, around ten percent mothers knew two signs of dehydration.
- ◆ Approximately, 39 percent mothers knew how to prepare Jeevan Jal (Oral Rehydration Solution). Of them, only 28% demonstrated the preparation of Jeevan Jal correctly.
- ◆ Around 17 percent households have latrines.
- ◆ A substantial majority of respondents (97%) do not deworm their children regularly.

Pneumonia Case Management

- ◆ Nearly 31 percent mothers reported that their children had attacks of acute respiratory infection during the last two weeks.
- ◆ Around 66 percent of the mothers sought treatment when their children suffered from acute respiratory infection. Of them, 26 percent had consulted with private clinics and 25 percent were taken to government health facilities.
- ◆ Around 47 percent mothers knew two signs of pneumonia.
- ◆ Approximately, 41 percent of mothers told that firstly they would take their child to the hospital/doctor to treat while suffering from pneumonia. For the second time treatment, again 40 percent said that they would take the child to the hospital/doctor.

Maternal and Newborn Care

- ◆ Nearly 6% mothers had maternal health cards with them.
- ◆ Based on the available maternal health cards, only 3 percent of mothers had taken 2 or more than two doses of Tetanus Toxoid injection.

- ◆ Based on verbal recall, around 29 mothers claimed that they had taken two or more than 2 doses of Tetanus Toxoid injection.
- ◆ Thirty nine percent mothers told that they had at least one antenatal check up during the last pregnancy. Based on the available maternal health cards, only 4 percent mothers had antenatal check ups and nearly half of them had three or more than three check ups in the last pregnancy.
- ◆ Of those who had antenatal check ups in last pregnancy, 54 percent consulted nurses, 27 percent consulted doctors and around 8 percent consulted with the Traditional Birth Attendant.
- ◆ Only about 20 percent of mothers took iron folic acid tablets during their last pregnancy. Of them, just over 50 percent consumed for only one month and around one quarter (29 percent) took for more than 3 months.
- ◆ Only 10 percent mothers knew two danger signs in pregnancy.
- ◆ Around 91 percent mothers delivered the last baby at home. Only 5 percent delivered at the hospital. One percent delivered at Health Post.
- ◆ Around 28 percent of mothers had some form of birth planning. Of those, who had some form of birth planning, around 31 percent discussed seeking advice and help from a Traditional Birth Attendant (TBA) and around 30 percent discussed where to go in an emergency or a difficult birth with their family members prior to the delivery.
- ◆ The most frequently mentioned source of assistance in delivery was untrained TBA (32 percent). The next most common source of assistance mentioned was mothers in law (28 percent). Around 16 percent had their last deliveries attended by a trained provider.
- ◆ Around 35 percent mothers told that they themselves had cut the umbilical cord of the newborn after delivery. Another 30 percent mentioned that it was done by an untrained TBA.
- ◆ Approximately 63 percent mothers told that the umbilical cord was cut using a new razor blade. Another 19 percent told mothers told that a sickle was used to cut the cord.
- ◆ Around 16 percent mothers used Safer Home Delivery Kit (SHDK) during the last delivery. Of the mothers, who said they used SHDK, 33 percent got from grocery shop and 14 percent got from TBAs.
- ◆ Around seven percent mothers told that nurse provided newborn care after delivery. About 29 percent reported that untrained TBAs provided the newborn care after delivery.
- ◆ Only around 6 percent mothers got a check up after delivery by a trained health service provider.
- ◆ Around 7 percent mothers knew at least 2 danger signs after delivery that would require help or treatment.
- ◆ More than 36 percent mothers did not know any sign and symptoms of neonatal sickness. Around 32 percent mothers said that inability to suckle breastmilk properly is the sign of neonatal illness. Another 10 percent stated rapid/fast breathing as the sign of neonatal illness.
- ◆ Around 25 percent mothers reported that they had consumed a high potency "Vitamin A" capsule within 45 days after delivery.

Malaria

- ◆ Around 14 percent children had fever during the last two weeks. Of them, 28 percent had shaking fever with sweating and cold.
- ◆ Approximately 75 percent households have bed-nets. Around 41 percent mothers said that they used bed-nets. Around 38 mothers said that their children used the bed-nets. Similarly, around 32 percent mothers reported that their husbands used the bed-nets.

(Note: There is no comparable data on the net use from other sources and observation suggests that the actual net use might be less than reported.)

I. INTRODUCTION

A. Background

Kanchanpur District is located in Far Western Terai, a lowland area on the border with India characterized by flatland rice farming and dense population. According to the 1996 Nepal Family Health Survey (also known as the Nepal Demographic and Health Survey (NDHS), Infant Mortality Rate (IMR) average of ten years prior to survey, nationally, was 93 per 1,000 live births, under-five mortality was 139.2 per 1,000 live births. Leading causes of mortality and morbidity are pneumonia, diarrheal disease and malnutrition.

Although 1996 NDHS survey did not provide data at the district level, the 1991 Nepal Fertility and Health Survey district level data for Kanchanpur shows IMR was 113 per 1,000 live births. According to the District Health Officer, the figure for Kanchanpur was 120 per thousand for 1997/98. The Total Fertility Rate was 5.9.

It has been felt that the government services including health have not kept pace with the rapid population growth of the district due to in-migration. Nationally, one Sub-Health Post (SHP) would cover around 3-5,000 people. In Kanchanpur, one covers as many as 17,000. Each VDC has one Village Health Worker (VHW) who takes care of health activities. In Mahendranagar Municipality, the only city in Kanchanpur (population around 80,000), there is only one VHW. There is one hospital that is fairly equipped but grossly understaffed and lacking an adequate drug supply. There are two Primary Health Centers with limited in-patient facilities, eight Health Posts and 11 Sub-Health Posts. A comparison with Chitwan, another Terai district with roughly the same population, shows that Chitwan has twice as many Sub-Health Posts.

CARE-Nepal initiated its first Child Survival Project (CS XV) in September 30, 1999 in 19 Village Development Committees (VDCs) and one Municipality of Kanchanpur District. This Child Survival Project is being supported by USAID for a period of four years.

The project will seek to reduce maternal and child mortality in Kanchanpur District by achieving the following objectives:

1. Community level Ministry of Health personnel, Female Community Health Volunteers (FCHVs), and other service providers practicing appropriate case management of diarrhea, malaria, and pneumonia, malnutrition, maternal and newborn care.
2. Community members, particularly mothers, practicing healthy behaviors, including seeking medical care from trained sources when needed.
3. Families have sustainable access to health education, quality care, and essential medicines at the community level.

The Child Survival Project focuses on the following five interventions:

- Diarrhea case management
- Pneumonia case management
- Malaria
- Nutrition/Breastfeeding
- Maternal health/New born care

The project has targeted the beneficiary population of approximately 53,304 children under five years of age and 66,630 women of reproductive age. CARE-Nepal will cover the entire district, but will focus more intensively on disadvantaged groups such as low caste, landless and Tharu bonded laborers. Such groups, which are the least likely to access services, will be identified during the initial phase of the project.

The main approach of the project is to use three coordinated strategies to improve utilization and quality of health services in Kanchanpur District. These include:

1. Community education through the Female Community Health Volunteers (FCHVs) and other trained providers,
2. Improving the supply of services by increasing the number and efficacy of FCHVs, assisting the existing Ministry of Health (MOH) staff to use time and resources more efficiently and mobilizing the Village Development Committees (VDCs) to advocate for and support improved supplies and services,
3. Implementing systems in the communities to ensure sustainability.

B. Objectives of the Survey

The objectives of the Knowledge, Practice and Coverage (KPC) survey are as follows:

1. To collect, analyze and document necessary quantitative baseline information on mothers' and children's health in five key intervention areas of the project (diarrhea case management, pneumonia case management, malaria prevention and management, nutrition education and maternal and new born care).
2. To generate necessary information for developing Detailed Implementation Plan (DIP) of the Child Survival project in Kanchanpur District.

C. Schedule of survey activities

The KPC survey was conducted from 7 to 10 January 2000. The detail schedule of the activities is as follows:

Dec. 30, 1999	Survey Trainer (Consultant) and CARE-Nepal Kathmandu based health staff meeting
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Dec. 31, 1999	Start review of survey questionnaires
Jan. 1, 2000	Review of project objectives, logical framework and finalization of survey questionnaire
Jan. 2	Identification and preparation of supervisors and interviewers
Jan. 3-5	Training of supervisors and interviewers
Jan. 6	Field training exercise and debriefing of field experiences/preparation for the field survey
Jan. 7-10	Conduct survey interviews
Jan. 11-12	Manual tabulation of the questionnaires
Jan. 13	Presentation of Rapid KPC survey preliminary findings at project office (feedback session)
Jan. 14-31	Report writing and production of report

II. METHODOLOGY

This survey used 30 cluster sampling technique. The study population comprises mothers of children under the age of 24 months living in the project area. In this survey, if the interviewing mother had two or three children less than 24 months, the youngest child was selected for the interview. If the interviewing mother's household had two or three mothers, the mother who had the youngest child was selected for the interview.

A. The Questionnaire

A 71-item questionnaire was designed to collect information from mothers of children under 24 months of age. The questions were based on a standardized survey format and were adapted to the context of the Kanchanpur project. A few questions were added to obtain specific information required for the project. Local staff adapted the standardized survey instrument with the assistance of CARE-USA.

The standard questionnaire of English version was adapted for making Nepali version of the questionnaire. The questionnaire was pretested in the field and finalized before starting the actual field survey. The Nepali version of the questionnaire was again translated into English during report preparation, and can be found in Annex 1.

During the survey, interviewers measured children's, weight and height. Weight of the baby was measured using the Salter scale to the nearest 0.1 kg. All the children were weighed in their underclothes. The field team calibrated the scales using a standard weight prior to the start of the survey and periodically throughout the survey. To measure the height in children under two years of age, the recumbent length to the nearest 0.5 cm was recorded with the use of a height board.

The hemocue system was used for quantitative determination of hemoglobin in blood of the mother using a specially designed photometer, hemocue photometer and specially designed microcuvettes, hemocue microcuvettes. The calibration was checked daily by using the control cuvette provided. The measured hemoglobin value was read directly from the hemocue photometer in g/dl.

Mid Upper Arm Circumference (MUAC) of the mother was measured at the mid point of the mothers left arm using a color-coded measuring tape. The MUAC was measured to the nearest 0.1 cm.

B. Determination of Sample Size

Sample Size was calculated with the following formula:

$$n = Z^2(pq) / d^2$$

where: **n** = Sample Size

z = Statistical certainty chosen

p = Estimated prevalence/ coverage/ level to be investigated

q = 1- p

d = Precision desired

The value of “p” was defined by the coverage rate that requires the largest sample size ($p = 0.5$). The value of “d” was dependent on the precision, or margin of error, desired (in this case $d=0.1$). The statistical certainty was chosen to be 95% ($z = 1.96$). Given the above values, the sample size (n) needed was determined to be:

$$n = (1.96 \times 1.96) (0.5 \times 0.5) / (0.1 \times 0.1)$$

$$n = (3.84) (0.25) / 0.01$$

$$n = 96$$

It takes much time to randomly select and identify individual from the survey population and then perform this selection 96 times to identify a sample of $n = 96$. Doing a 30 cluster Sample Survey in which several individuals within each cluster are selected to reach the required Sample Size can save time. However, in order to compensate for the bias which enters the survey from interviewing persons in clusters, rather than as randomly selected individuals, experience has shown that a minimum sample of 210 (7 per cluster) should be used, given the values of p, d and z above (Henderson, et. Al, 1982). In general, when using a 30 cluster Sample Survey, the Sample Size used should be approximately double the value n, when $n = (z \times z)(p \times q)/(d \times d)$.

In this case, a sample size of 300 (10 per cluster) was selected so as to ensure that sub-samples would be large enough to obtain useful management type information.

The estimates for the survey results were calculated using the following formula:

$$\text{95\% confidence limit} = p \pm z \times \text{Square root of } \{pq / (n/2)\}$$

where, p = proportion in population found. From survey, z = statistical certainty chosen (if 95% certainty chosen, then $z = 1.96$), q = 1-p and $n/2$ = half the sample size, halving being done to compensate for the cluster design effect.

Example: If the proportion of mothers in the survey who completely got TT immunization is 5% and $n = 240$

95 % confidence limit = $0.05 \pm 1.96 \times \text{Square root of } (0.05 \times 0.95) / (240/2)$
($z = 1.96$)

$1.96 = 0.05 \pm 1.96 \times \text{Square root of } (0.05 \times 0.95) / 120$

$1.96 = 0.05 \pm 1.96 \times \text{Square root of } 0.05 / 120$

$1.96 = 0.05 \pm 1.96 \times \text{Square root of } 0.0041$

$1.96 = 0.05 \pm 1.96 \times 0.02$

$1.96 = 0.05 \pm 0.04$ (1% to 9%)

In other words, we are 95% sure that actual proportion of the mothers in the survey area who were completely and correctly got TT immunization is between 1% and 9%.

C. Selection of the Sample

The sample consisted of 300 women with children 0-23 months of age in 19 Village Development Committees and one Municipality of Kanchanpur District. Ten households were selected in each of the 30 randomly selected wards (cluster sites), following the process described in EPI coverage Survey Training Manual (WHO, Geneva, October 1998). Sample Interval (SI) = Total Population of the District/ 30 clusters

Random Number was selected using a currency note, which is equal or less than Sample Interval. After that, by using the random number the first cluster site was selected which is equal or more than random number. By adding the sample interval to random number, the second cluster was selected. The third cluster was selected by adding sample interval to second cluster. By following this procedure, all the wards population had equal opportunity and 30 clusters were selected (See: Annex 3).

Once the survey team reached the designated cluster site, the team found out the center and spun a bottle. Following the direction of the bottle, all houses (with a child under 24 months) between the Village Center and border were identified and serially numbered (house listing). The initial house to be interviewed was selected by drawing a number slip of paper. The survey team started the interviews in the randomly selected house and continued with the houses in the direction of the bottle spin to the border. After reaching the border, the next nearest household was interviewed. Thus, in total, 10 households were selected in each selected cluster.

D. Training of supervisors and interviewers

CARE Child Survival Project Mahendranagar staff were involved as supervisors and interviewers in this survey. Six District Public Health Office staff and one NGO staff (NNSWA) also participated as interviewers in the survey. The training of supervisors and interviewers took place in three and half days. An outside consultant facilitated the training. (See Annex 2 for list of participants.)

The first two days of training focused on:

- purpose/objectives of the survey,
- 30-cluster sample survey methodology,
- interview technique,
- questionnaire review, and

- role-play on interviewing technique.

The first half of the third day of the training was focused on review of interview technique, household selection process, demonstration and practice of measurement of percentage of Hemoglobin (Hb), weight and height measurement of child, and measurement of arm circumference of mothers. The second half of the third day was dedicated to the field practice. In the field practice, each interviewer interviewed two mothers of children 0-23 months.

During the training, the role of the supervisor and interviewer were also discussed. The role of the supervisor was to lead the team, make sure that starting of household mother selection was correctly done, observing the interviewer's conducting interview, checking the completed survey questionnaire and sending the interviewer back to mother if the information was missing. The role of the interviewer was to complete the questionnaire correctly and completely.

The fourth day of the training commenced with debriefing of the field test experiences and finalized the schedule of the field survey activities. The survey teams were divided into five teams and each team composed of four interviewers and one supervisor.

E. Interviews

The survey was conducted over four days, from Jan 7-10. During the survey, the survey team (supervisor and interviewers) checked all the completed survey questionnaires every evening. If information/data was missing, the interviewer was sent back again to the interviewed mother to fill in the missing information. After returning from the interviews, every questionnaire was again collected and the survey supervisors reviewed all the questionnaires for accuracy and completeness. About 10% of the questionnaires were re-administered by supervisors for validity check.

F. Method of Data Tabulation and Analysis

A team of 25 supervisors and interviewers tabulated the data by hand. Manual tabulation required the whole day dedicated to tabulation. The hand tabulators sat around the training room. The questionnaires were organized by cluster site. The tabulators each recorded the responses to one question at a time going through each of the 300 survey questionnaires until all the responses to that particular question had been tabulated.

The survey data of all 300 questionnaires were also entered into computer based EPI-Info program developed by the CDC. Through the computer, the required data were analyzed and compared with hand-tabulated data for cross checking and preparing the final survey report.

Nutritional status was estimated using the results of anthropometry (measurement of height and weight) in children below 24 months of age. Combining the height, weight, and age data, three indices of physical growth describing children's nutritional status were estimated: height for age, weight for age and weight for height. Z scores for each of the anthropometric indicators were calculated using the EPI Info program. The

reference growth curves developed by the National Center for Health Statistics and CDC. A Z score of -2 to -3 was considered as mild to moderate malnutrition and a Z score of <-3 was considered as severe malnutrition.

G. Limitation of the study and challenges

This study focuses on the 300 mothers who have 0-23 months children. These study findings only represent the target group of Kanchanpur District and may not represent the other Terai districts or national level. With limited time and limited logistical support, the study was carried out and the study team faced the challenges of interviewing 300 mothers at the grassroots level. During the survey, due to the large and scattered of the cluster sites, the interviewing took time more than expected.

III. RESULTS

A. Mother's Age

The mean age reported by mothers is 24.3 years. Only 3.3% of mothers were below 18 years of age and 3% who were over 35 years. The 1996 Nepal Family Health Survey (NFHS) data shows that the majority of ever married women are concentrated in the age group 20-34 which is similar to this survey.

B. Child's Age

Table 1: Age of the Child

Age	Male	Female	Total	Percent
<6 months of age	57	54	111	37
6 -11 months	37	35	72	24
12 – 23 months	68	49	117	39
Total	162	138	300	100

The mean age of the children in the survey is 9.8 months. Forty-six percent are female and 54% are male.

C. Mother's Education and Occupation

Table 2: Education

Education	Frequency	Percent
Illiterate	208	69.3
No school but can read and write	25	8.3
Class 1-5	25	8.3
Class 6-8	28	9.3
Class 9-10	8	2.7
Beyond class 10	6	2
Total	300	100

Almost 70 percent of mothers in the survey reported that they could neither read nor write. This is comparatively lower than the 1996 Nepal Family Health Survey (DHS), which reported that 80% of ever-married women (15-49 age group) had never been to school. Nepal Multiple Indicator Surveillance (NMIS) Health and Nutrition-Cycle 1, (1995) showed that 17% mothers could read and write whereas this survey shows that about 31% mothers can read and write.

Table 3: Occupation

Occupation	Frequency N=300	Percent
Mothers did not go out for income generation work	262	87.3%
Domestic Enterprise (Sewing/weaving/carpeting)	2	0.7%
Selling of agriculture products	35	11.7%
Shop keeper/street vendor	2	0.7%
Job (Govt./Non Govt./Private/Work at other's house)	4	1.3%
Selling dairy products (milk/curd/ghee)	1	0.3%
Wage earner	5	1.7%
Selling of livestock (sheep/goat/pig/chicken)	2	0.7%
Others: Grass cutting/ taking care of cattle	32	10.6%

Multiple answers

A total of 262 mothers (87.3%) stated that they had no source of income outside the home. Of women reporting outside income the majority are engaged in selling agricultural labor or sales.

D. Child's Caretaker

Table 4: Child's Caretaker

Caretaker	Frequency N=300	Percent
Mothers-in-law	137	45.7
Fathers-in-law and other family members	78	26.0
Brothers/Sisters	63	21.0
Husband	22	7.3
Bring with them	35	11.7
Left home alone	21	7.0

When asked who watches a child when the mother is away, 45.7% of mothers reported that their mothers-in-law took care of the child and another 26% said that they left their children with fathers-in-law. Only 7.3% said their husbands watched the child, almost tied with the category of leaving the child home alone.

Multiple answers

E. Breastfeeding/Nutrition

Table 5: Currently Breastfeeding

Breastfeeding	Frequency	Percent
Currently breastfeeding	291	97.0
Not currently breastfeeding	9	3.0
Total	300	100

Almost all (97%) of mothers reported that they were breastfeeding their child and all of them reported they had breastfed the child in the past. Nepal Multiple Indicator Surveillance (Cycle 1, 1995) showed that 90% of women had been currently breastfeeding their children under 2 years of age.

Table 6: Initiation of breastfeeding

Around half (48.7%) of mothers reported that they had breastfed their child within one hour after delivery and another 41.3% claimed that they breastfed between one and eight hours after delivery. It can be said that 90% (270 of 300) initiated breastfeeding within eight hours of birth. NFHS, 1996, showed that nationally 18% of children are breastfed within one hour of birth.

When initiated	Frequency	Percent
Within one hour of delivery	146	48.7
1-8 hours after delivery	124	41.3
8-15 hours after delivery	13	4.3
After 15 or more hours	14	4.7
Don't know	3	1.0
Total	300	100

Table 7: Mothers discarding some milk before starting regular breastfeeding

	Frequency	Percent
Mothers who did not discard milk	219	73.0
Mothers who discarded	71	23.7
Did not know	10	3.3
Total	300	100

About 23% mothers reported that they discarded the first yellow milk (71 of 300) within first three days after delivery.

Table 8: Duration of Exclusive Breastfeeding

Seventy four percent of mothers breastfed for less than four months. While it can be said that around 66% (198 of 300) mothers breastfed exclusively for at least four months, over 17% breastfed exclusively beyond six months including almost ten percent who breastfed exclusively more than nine months.

Duration	Frequency	Percent
<1 month	300	100
1 month	269	89.7
2 months	246	82.0
3 months	221	73.7
4 months	198	66.0
5 months	163	54.3
6 months	119	39.7
7 months	51	17.0
8 months	34	11.3
>9months	29	9.7
Total	300	100

Table 9 presents the percentage of children 6 to 24 months of age by type and frequency of food consumed in last 24 hours and 7 days before the interview. According to the 24 hour food recall, the frequency of consumption of cereal based food is very low. Only, 17% children consumed 3 or more cereal based diet in last 24 hours. In last 7 days, around 40% children had consumed cereal based food 7 or more times.

The consumption of protein foods was also very low according to both 24 hour and 7 day food recall. Only 4% children had consumed meat, fish and eggs for 7 or more times in last 7 days.

In terms of Vitamin A rich foods, only 35% children had consumed green vegetables for 7 or more than 7 times in last 7 days. The consumption of mango, papaya and yellow fruits and pumpkin, red sweet potato and carrot was also very low in last 24 hours and 7 days before the interview.

Table 9: Type of Foods consumed by children 6-23 months in last 24 hours and 7 days (n=188)

Type of Foods	Percent of children by frequency of consumption in last 24 hours			Percent of children by frequency of consumption in last 7 days			
	1 time	2 times	3 or more times	1-2 times	3-4 times	5-6 times	7 or more times
Cereals based food	12	19	17	7	4	1	40
Mango, Papaya and yellow fruits	2	1	0	4	1	0	3
Pumpkin, red sweet potato, carrot	4	<1	<1	9	1	0	1
Meat, fish, eggs	13	3	1	27	2	2	4
Milk or milk powder	4	2	1	7	3	0	4
Green Vegetables	21	24	8	12	10	6	35
Pulses	7	4	<1	11	5	1	3

(Total more than 100% due to multiple answers)

Table 10: Mother's knowledge on age at introduction of complimentary foods

Age	Frequency	Percent
3-5 months	48	16.0
At 6 months	126	42.0
After 6 months	103	34.3
Did not know	23	7.7
Total	300	100

Over a third of mothers said that children should be given additional foods after six months of age. Forty-two percent said at six months.

Very few mothers (5%) told that cooking oil or butter should be added to the children's complimentary foods. Nine percent (27 mothers) responded that green vegetables should be additional food.

By combining it with other foods such as lentils, bread, milk, etc, rice gets mentioned in seven different categories. Rice also has a plurality (12.3%) as a stand-alone category, making it far and away the most commonly suggested food. This may be due to the overwhelming importance of rice as a crop in Kanchanpur.

Table 11: Type of additional foods to breastmilk

Type of Food	Frequency	Percent
Did not know	58	19.3
Adding of oil/butter	16	5.3
Vegetables	27	9.0
Fruit/Yellow fruit	13	4.3
Meat/Fish	8	2.7
Others:	190	63.0
Details of Others:		
Food made with flour	25	8.3
Rice and Lentils	37	12.3
Rice only	37	12.3
Rice/Lentil/Bread (Roti)	27	9.0
Biscuits/Rice	10	3.3
Bread (Roti) and Rice	16	5.3
Liquid food made from grain flour (Jaulo)	18	6.0
Rice and milk	14	4.7
Rice/Bread/Curry/Milk	6	2.0

Multiple answers

Around 79% of the children 6 to 60 months of age received high potency Vitamin A capsule during the last six months.

Table 12: Vitamin "A" received by child during last six months

	Frequency	Percent
Received Vitamin "A" during last 6 months	149	78.8
Did not receive Vitamin "A"	40	21.2
Total	189	100

*Note: 111 children were not the age to give Vitamin "A", N=189

Sarbottam Pitho is a multi-mix porridge which is promoted by Ministry of Health as the supplementary food for young children. It is made up of locally available foods (two parts legumes and two parts cereals of two different types, roasted, ground and mixed). Out of 300 mothers only 25 knew about *Sarbottam Pitho* and of those only six knew how to prepare it.

Table 13: Knowledge of Sarbatam Pitho (Superflour)

Knowledge	Frequency	Percent
Knew about Sarbatam Pitho	25	8.3
Did not know	275	91.7
Total	300	100
Of those mothers who knew about Sarbatam Pitho (N=25)		
Mothers who knew how to prepare Sarbatam Pitho	6	24.0
Mothers who did not know how to prepare Sarbatam Pitho	19	76.0

F. Growth Monitoring

Table 14: Weighing of newborns (mothers' recall)

	Frequency	Percent
Number of newborn children who were weighed	23	7.7
Number of children who were not weighed	276	92.0
Mothers did not know about weighing of child	1	0.3
Total	300	100

Weighing of newborns appears to be uncommon in Kanchanpur, with only 23 of 300 mothers reporting the activity.

Table 15: Use of Growth Monitoring Cards

	Frequency	Percent
Had growth card	77	25.7
Could show card	39	13.0
Could not show card	38	12.7
Did not know about card	223	74.3
Total	300	100

Around one in four mothers said they had a growth-monitoring card for their child. Only half of them could show the card. Three out of four said they did not know about the card.

Table 16: Children who were weighed in the last four months

	Frequency	Percent
Children weighed in the last four months	14	56.0
Not weighed	25	64.0
Total	39	100

Of the 39 mothers who had growth-monitoring cards, 56% (14 mothers) had a card that indicated that their child had been weighed in the last four months.

G. Nutritional Status of Children

Nutritional status was estimated using the results of anthropometry (measurement of height and weight) in children below 24 months of age. Combining the height, weight, and age data, three indices of physical growth describing children's nutritional status were estimated: height for age, weight for age and weight for height. The three indices provide indications of children's susceptibility to diseases and their chances of survival and are expressed as standardized (z-score) deviation units from the median of a reference population recommended by the World Health Organization (WHO). The reference population serves as a point of comparison, facilitating the examination of differences in the anthropometric status of sub-groups in a population and changes in nutritional status over time. Children who fall below two standard deviations from the reference median are regarded as malnourished, whereas children who fall below three standard deviations from the reference median are regarded as severely malnourished. Each of the three indices measures somewhat different aspects of nutritional status.

Children whose height for age is below minus two standard deviations (-2 SD) from the median reference population are considered short for their age or *stunted*, while those whose measures are below minus three standard deviations (-3 SD) from the reference population median are *severely stunted*. Stunting of a child's growth may be the result of a failure to receive adequate nutrition over a long period of time or of the effects of recurrent or chronic illness.

The weight for height index measures body mass in relation to body length. Children whose weight for height measures are below minus two standard deviations (-2SD) from the median of the reference population are thin for their height or *wasted*. Children who are below minus three standard deviations (-3SD) from the reference population median are *severely wasted*. Wasting represents the failure to receive adequate nutrition during the period immediately before the survey. It may be the result of recent episodes of illness or acute food shortage.

Weight for age is a composite index of height for age and weight for height. Children whose weight for age measures are below minus two standard deviations (-2 SD) from the median of the reference population are *underweight* for their age while those whose measures are below minus three standard deviations from the reference population are *severely underweight*. Being underweight for one's age, therefore, could mean that a child is stunted, or wasted, or both stunted and wasted.

An examination of Table 18 on height for age suggests that there is considerable chronic malnutrition in Kanchanpur district. Overall, 24% children under two years of age were stunted and of them, 10% were severely stunted. The problem was most serious among children 18-23 months of age. According to NFHS 1996, 41% children of under 2 years of age were stunted and of them, 14% were severely stunted. The KPC survey showed that stunting increases sharply from 4% among children below 6 months of age to 60% among 18-23 months children. This trend is quite similar to that reported in NFHS. NFHS reported that stunting increases from 15 percent among children below 6 months of age to 59 percent among children 12-23 months.

Table 17: Percentage Distribution of Children by Height for Age Z Scores

Demographic Characteristics	Height for Age			Number of children
	>2sd (%)	-2 to -3sd (%)	<-3sd (%)	
Child's age				
<6 months	96.1	1.9	1.9	104
6-11 months	88.2	8.8	2.9	68
12-17 months	62.0	24.0	14.0	50
18-23 months	40.0	32.3	27.7	65
Child's Sex				
Female	73.7	14.1	12.2	131
Male	77.9	14.5	7.6	156
Total	75.6	14.3	10.1	287

In Kanchanpur, the KPC survey showed that males are slightly more likely to be stunted (26%) or severely stunted (12%) than females (22% and 8% respectively). Contrarily, NFHS reported that female children under 3 years of age are slightly more likely to be stunted (50%) or severely stunted (22%) than male children of same age (47% and 19% respectively).

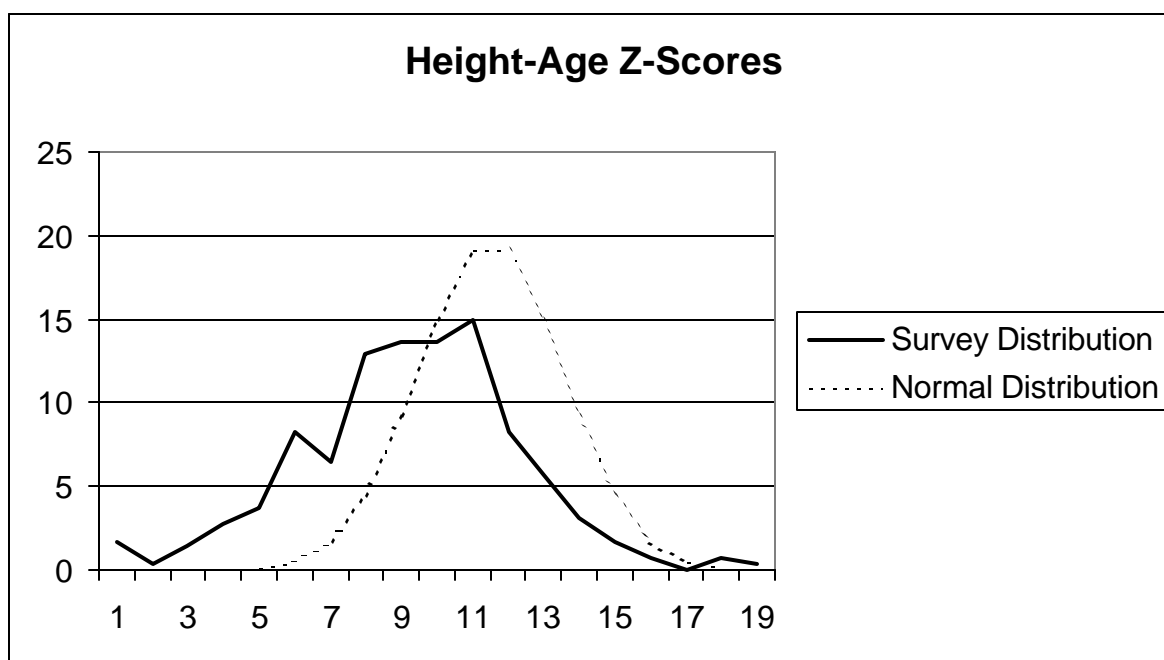


Table 18: Distribution of Children by Weight for Height Z Scores

Demographic Characteristics	Weight for Height			Number of children
	>2sd (%)	-2 to -3sd (%)	<-3sd (%)	
Child's age				
<6 months	89.4	6.7	3.8	104
6-11 months	86.8	8.8	4.4	68
12-17 months	76.0	20.0	4.0	50
18-23 months	76.9	15.4	7.7	65
Child's Sex				
Female	86.2	10.7	3.0	131
Male	81.4	12.2	6.4	156
Total	83.6	11.5	4.9	287

The percentage of children with wasting was 16 percent and of them, 5 percent were severely wasted. NFHS reported that 13% children under 2 years of age were wasted and 2% were severely wasted. It shows that the problem of acute malnutrition is more serious in Kanchanpur than at the national level. The level of wasting increases from 10% among children under 6 months of age, peaks at 24% among children 12-17 months of age. This trend is similar to that reported in NFHS. As in stunting, male children are slightly more likely to be wasted (19%) than the females (14%) in Kanchanpur.

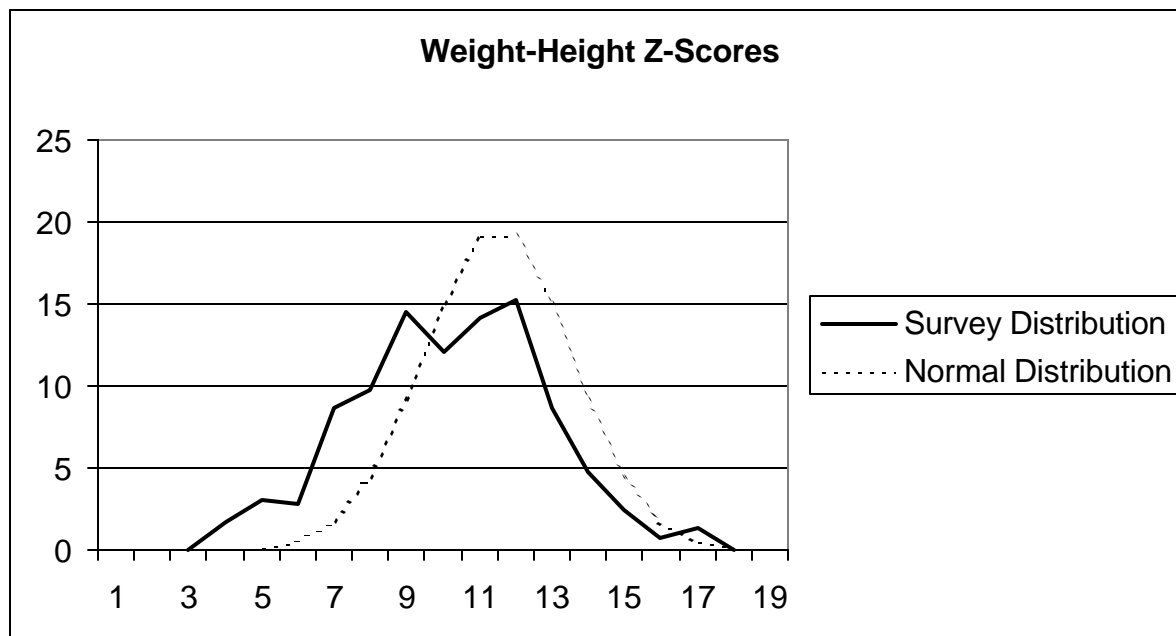


Table 19: Distribution of Children by Weight for Age Z Scores

Demographic Characteristics	Weight for Age			Number of children
	>2sd (%)	-2 to -3sd (%)	<-3sd (%)	
Child's age				
<6 months	94.2	3.8	1.9	104
6-11 months	86.8	7.3	5.9	68
12-17 months	54.0	30.0	16.0	50
18-23 months	41.5	41.5	16.9	65
Child's Sex				
Female	78.6	13.0	8.3	131
Male	69.2	21.8	9.0	156
Total	73.5	17.8	8.7	287

Twenty six percent of children in Kanchanpur are underweight and of them, 9% are severely underweight. According to NFHS, 42% children under two years of age of Nepal are underweight and 14% are severely underweight. As in stunting, underweight problem is more common in 18-23 months children in Kanchanpur. Differential in the percentage of children underweight by sex is similar to those observed in wasting and stunting.

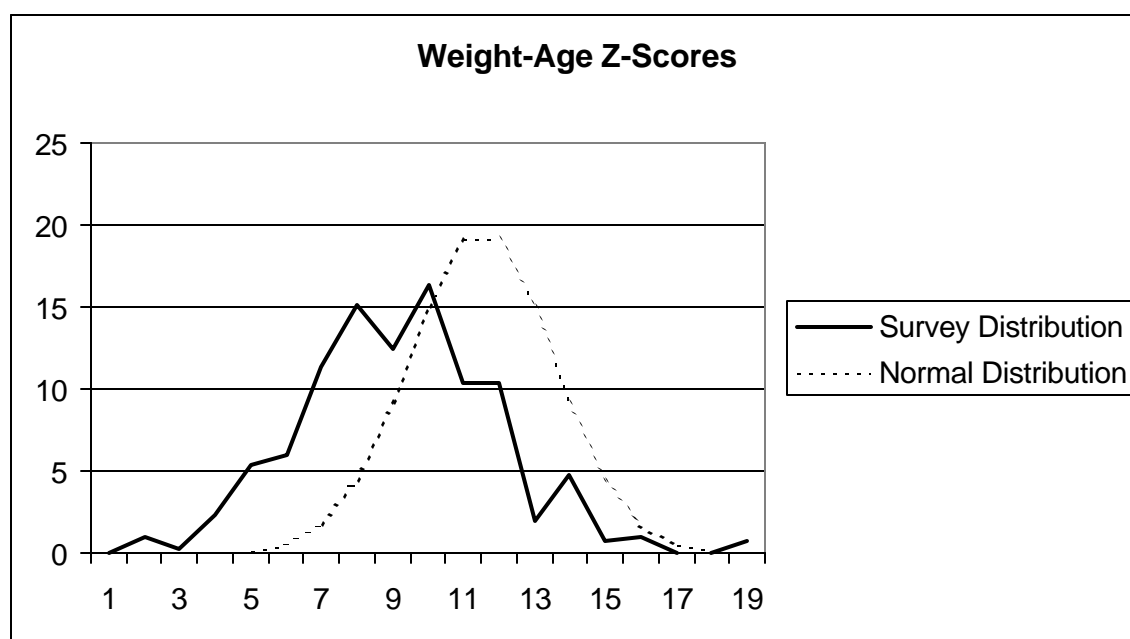


Table 20: Distribution of Children by Weight for Height and Height for Age Z Scores

Weight for Height	Height for Age			Total
	>-2sd (%)	-2 to -3sd (%)	<-3sd (%)	
>-2 sd	63.4	11.8	8.4	83.6
-2 to -3 sd	7.7	2.4	1.4	11.5
<-3 sd	4.5	0	0.3	4.8
Total	75.6	14.2	10.1	100

Table 21 shows that around 4% children of Kanchanpur are both stunted and wasted. Of them, less than one percent (0.3) are severely wasted and stunted.

H. Maternal Nutritional Status

The basic measures used to assess the maternal nutritional status in this survey are hemoglobin concentration in the circulating blood and mid-upper arm circumference of mothers.

Anemia is defined as a hemoglobin concentration that is below normal, usually defined as two standard deviations below two standard deviations below the median hemoglobin value observed for a reference population of healthy individuals of the same gender, age and physiologic status. World Health Organization has set the cutoff values of Hemoglobin concentration for anemia as <11.0 gm/dL and <12.0 gm/dL for pregnant and non-pregnant women respectively. Similarly, hemoglobin concentration of <7.0 g/dL and <4.0 g/dL are considered as severe anemia and very severe anemia conditions.

Table 21: Distribution of Mothers by Hemoglobin Levels

Hemoglobin Levels	Number	Percentage
<4 gm%	2	0.7
5-6 gm%	8	2.9
7-10 gm%	116	42.2
11-13 gm%	135	49.0
>13 gm%	14	5.1
Total	275	100

The hemocue system was used for the quantitative determination of hemoglobin concentration of mothers in Kanchanpur. The result shows that anemia is a serious problem among mothers in Kanchanpur. Considering 11 g/dL as the cutoff point for anemia, around 46% of the mothers were anemic and of them, 4% were severely anemic (< 7g/dL).

Table 22: Distribution of Mothers by Mid Upper Arm Circumference Measurements

Mid Upper Arm Circumference (cm)	Frequency	Percent
<21 cm	25	8.3
21 cm	41	13.7
22 cm	64	21.3
23 cm	66	22.0
>23 cm	104	34.7
Total	300	100

The mid-upper arm circumference (MUAC) measure reflects the nutritional status of women of reproductive age. MUAC correlates with both weight and weight for height. MUAC measure of the mother is also related to low birth weight and late fetal and infant mortality. The same cut-off value is appropriate for both pregnant and non-pregnant women, since values vary only slightly during pregnancy. Studies have shown a range of cut-offs between 21 cm to 23.5 cm. Based on 22 cm as the cut-off point, 22% mothers were found to be of inadequate nutritional status. Probably this is the first time that MUAC has been used to assess the maternal nutritional status in Nepal, there is no comparable data available.

I. Diarrheal Disease

Table 23: Knowledge about diarrhea

	Frequency	Percent
Watery stools once a day	7	2.3
Two times a day	18	6.0
Three or more times a day	225	85.0
Did not know	20	6.7
Total	300	100

When asked to define the number of loose stools per day that would indicate that their child had diarrhea, the large majority of mothers (85%) said three or more.

Table 24: Children who had diarrhea in last two weeks

Over 28% (86 of 300) of the mothers surveyed stated that their child had diarrhea within the last two weeks. NMIS, 1995, and DHS, 1996, show that diarrheal diseases are common causes of child death in Nepal. NFHS also reported that 28% of the children suffered from diarrhea in the two weeks before the survey.

	Frequency	Percent
Children who had diarrhea within last two weeks	86	28.7
Children who had no diarrhea	210	70.0
Mothers did not know about child's diarrhea	4	1.3
Total	300	100

Similarly, according to NMIS 15% had diarrhea in the two weeks prior to the survey.

Table 25: Treatment of Diarrhea

	Frequency N = 86	Percent
Did nothing for child's diarrhea	38	44.2
Grain fluids	-	-
Salt/ Sugar/ Water solution	1	1.2
Cereal based ORT	-	-
Injection	2	2.3
Rice Starch	1	1.2
Antibiotics or anti-diarrheal	18	20.9
Herbal medicine	2	2.3
Infusion such as saline	-	-
Others----- Treatment through massage, with heat, herbs	22	25.6
Jeevan Jal (ORS)	2	2.3

Of the 86 children who had diarrhea during the last two weeks, 44.2% (38 mothers) reported that they did nothing to treat it. Another one in five (20.9%) claimed that they gave the tablets (antibiotics/anti-diarrheal) to the child to stop the diarrhea. Two mothers said that the child was given an injection to treat diarrhea whereas another two reported that they treated the child with herbal medicine.

Only two mothers said they gave Jeevan Jal (prepackaged ORS). One mother said that she treated her child with salt/sugar/water solution and another reported that she treated the child with rice starch.

Of the 86 children who had diarrhea, 85 were still being breastfed. Of these, 80.2% (69 children) children were given breastmilk more or the same amount as usual during the diarrhea episode. Sixteen mothers gave their child less breastmilk than usual.

Table 26: Breastfeeding during diarrhea

	Frequency N=86	Percent
Breastfeeding more than usual	17	19.8
Same as usual	52	60.5
Less than usual	16	18.6
No breastfeeding	1	1.1
Total	86	100

Table 27: Fluids given during diarrhea

	Frequency N=69	Percent
More than usual	4	5.8
Same as usual	20	28.0
Less than usual	16	23.2
Did not know	29	42.0
Total	69	100

Of the 86 children with diarrhea during the last two weeks, only four were given more fluids than usual while 23.2% (20 children) were given the same amount of fluids as usual. A large group, 42% (29 mothers) did not know about it.

Table 28: Giving solid/semi-solid foods during diarrhea

Of the 86 children with diarrhea in the last two weeks, 40 children had not been introduced to solid/semisolid foods. Out of 46 children who had already started complimentary foods, three were given more than usual. Around half were given the same as usual.

	Frequency N=46	Percent
More than usual	3	6.5
Same as usual	21	45.7
Less than usual	16	34.8
Stopping foods completely	6	13.0
Total	46	100

Table 29: Mothers taking advice during child's diarrhea

	Frequency N=43	Percent
Mothers took advice from hospital	4	9.3
Health post	6	13.9
Mobile Clinic	-	-
Medical shop	16	37.2
Village Health Workers	-	-
Traditional Healers (Dhami Jhankri)	3	6.9
Traditional Birth Attendants (TBAs)	-	-
Neighbors / Friends	10	23.3
Others: Family members	8	18.6

Multiple answers

When asked if they sought advice when their child was suffering from diarrhea, 50% (43 of 86) responded that they took advice. Of the 43 mothers who took advice, four went to hospital, six brought the child to a Health Post, and 16 got treatment/advice from medical shops. The rest, 18 mothers, got advice from relatives, neighbors or family members. DHS, 1996 shows that 14% children with diarrhea were taken to a government health facility compared to 13.9% in this survey.

Table 30: Signs/Symptoms when mothers seek treatment

	Frequency N=300	Percent
Vomiting	58	19.3
Weakness/ Tiredness	49	16.3
Fever	44	14.7
Prolonged diarrhea (> than 14 days)	50	16.7
Blood in stool	31	10.3
Loss of appetite	26	8.7
Dry mouth / Sunken eyes /sunken fontaneale	20	6.7
Did not know	60	20

Based on the mothers' responses, 25.7% (77 of 300) mothers knew two signs of severe diarrhea.

Multiple answers

Table 31: Signs of severe dehydration

	Frequency N = 300	Percent
Sunken eyes	69	23.0
No tears when the child cries	11	3.7
Dry mouth /Tongue	19	6.3
Thirsty	36	12.0
Slow skin pinch	17	5.7
Did not know	59	19.7
Others: thin, weak, pale face, dry	86	28.7

Around ten percent (28 of 300) mothers knew two signs of serious dehydration. Another 59 did not know any, and the rest (213) knew one sign.

Multiple answers

Table 32: Mother's knowledge of preparing ORS (Jeevan Jal)

	Frequency	Percent
Mothers who said they know how to prepare Jeevan Jal	118	39.3
Do not know	182	60.7
Total	300	100
Of those who said they knew how (N-118)		
Mothers who prepared Jeevan Jal correctly	33	28.0

Two out of five mothers (118 of 300) said that they knew how to prepare Jeevan Jal (Oral Rehydration Solution). Mothers who said they could prepare Jeevan Jal were asked to demonstrate. The total volume prepared was then compared to a standard measure. Only 26% prepared the Jeevan Jal correctly.

One of out six respondents had toilets. Of these 39 were pit latrines type and eleven were septic tank type. Of the 50 mothers who said they have toilet, 40 mothers' toilets were actually used. NMIS, 1995 shows that 18% have latrines.

Table 33: Presence and use of toilet

	Frequency N = 300	Percent
Have toilet	50	16.7
Do not have toilet	250	83.3
Total	300	100
Mothers who actually use toilet	40 (N=50)	80.0
Pit latrine type	39	
Septic tank type	11	

Table 34: Worm medicines

	Frequency	Percent
Gave worm medicines to the child in six months interval	9	3.0
Did not give worm medicines	291	97.0
Total	300	100.0

A substantial majority (97%) of respondents do not deworm their children regularly.

J. Respiratory Infection

Table 35: Child's illness with a cough

	Frequency	Percent
Had illness with cough during last two weeks	92	30.7
No illness with cough	195	65.0
Don't know	13	4.3
Total	300	100

Almost one in three mothers reported that their children had illness with cough during the last two weeks. Of these, 65 claimed that their children had rapid breathing with difficulty.

DHS and NMIS, 1995 show that 34% and 30% were ill with acute respiratory infection whereas KPC, Kanchanpur 2000 shows that about 31% were ill with acute respiratory infection. Both DHS and KPC survey was done in the peak season for ARI.

Table 36: Mothers sought advice/treatment when child had difficult breathing

	Frequency N=61	Percent
Brought child to hospital	8	13.1
Health post / Sub health post	12	19.7
Primary health care centers	3	4.9
Private Clinics	24	39.3
Community Health Worker	-	-
Traditional Birth Attendants	-	-
Female Community Health Volunteer (FCHW)	-	-
Traditional healers	4	6.6
Relatives/friends	6	9.8
Ayurvedic Vaidya	1	1.6
Health workers (ANM / MCHW/CMA)	1	1.6
Medical Hall	5	8.2

Two thirds of mothers (61 of 92) sought advice or treatment when their child suffered from rapid or difficult breathing. Of these, 24 children were taken to private clinics; 12 children were taken to health posts; three children were taken to primary health care center; five children were taken to medical halls; and four children were treated by traditional healers. Eight children were taken to the hospital for treatment. It can be interpreted that 52.1% (48 of 92) mothers sought medical care from qualified health service providers when their child had signs of pneumonia.

Multiple Answers

DHS, 1996 shows that 18% children with acute respiratory infection were taken to health facility.

When asked what the signs and symptoms of pneumonia were, 54.3% of the mothers responded with fast/rapid breathing, 38.7% of the mothers stated chest indrawing, 32% indicated fever, and 22% stated coughing. Based on the analysis of mothers' responses, 47.3% (142 of 300) mothers knew two signs of pneumonia.

Table 37: Knowledge of Pneumonia

Symptom	Frequency N=300	Percent
Fast/Rapid breathing	163	54.3
Chest indrawing	116	38.7
Fever	96	32.0
Don't know	76	25.3
Coughing	66	22.0

Multiple answers

Table 38: Signs /Symptoms when mothers sought treatment

	Frequency N=300	Percent
Rapid/Fast breathing	151	50.3
Coughing	117	39.0
Fever	113	37.6
Chest indrawing	101	33.7
Loss of Appetite	21	7.0
Don't know	79	26.3

When asked what the signs and symptoms of respiratory infection were that would cause the mother to take her child to a health facility, 50.3% (151 mothers) mentioned rapid/fast breathing, 39% (117 mothers) stated coughing, 37.6% and 33.7% stated fever and chest indrawing.

Multiple answers

Table 39: Pneumonia treatment First time/Second time

	Frequency (N=300)	Percent
Hospital/Doctor	123	41.0
Private clinics	91	30.3
Nurse/ANM/ MCH workers	20	6.7
Others: traditional healers/herbs/healing from religious person	66	22.0
Second time		
Hospital/Doctor	120	40
Private clinics	106	35.3
Nurse/ANM MCH workers	7	2.3
Others: domestic herbs/go to India	67	22.3

When asked where do mothers take their child suffering from pneumonia first for treatment, 41% (123 mothers) responded hospital/doctor. Another 30.3% stated private clinic whereas 6.7% (20 mothers) stated they would take to nurse/ANM/MCH workers for treatment. When asked where to go for second time treatment, 40% (120 mothers) responded they would take to hospital/doctor and 35.3% (106 mothers) stated private clinic while 2.3% (7 mothers) stated Nurse/ANM/MCH workers for treatments.

K. Maternal Health Care

Table 40: Maternal Health Cards

	Frequency	Percent
Mothers who had maternal health cards	17	5.7
Mothers did not have cards	283	94.3
Total	300	100

Thirty-nine percent (117 of 300 mothers) verbally claimed that they had made antenatal visits in last pregnancy. Only one of every 20 respondents had maternal health cards.

Table 41: Number of antenatal check ups based on the Maternal Card

	Frequency N=17	Percent
One time	4	23.5
Two times	4	23.5
Three times	2	11.8
Four times	1	5.9
Five times	2	11.8
Only cards, not mentioned	4	23.5

Of the small number of respondents with cards, four had only one check up, four were not mentioned, and nine had two or more.

Table 42: TT injection in last pregnancy based on cards

	Frequency N=17	Percent
One dose	5	29.4
Two doses	7	41.2
Three doses	2	11.8
Not mentioned	3	17.6
Total	17	100

NMIS, 1995 shows that 53% received TT injection one or more doses, 39% two or more doses, 25% three or more doses whereas KPC Kanchanpur, 2000 shows that based on the Maternal Health Card about 6% received TT at all, about 2% one dose, 2.3% two doses, about 1% three doses.

Table 43: Mothers stated check up during pregnancy

	Frequency	Percent
Had a check up	117	39.0
No check up	183	61.0
Total	300	100

When respondents were asked if they recalled having an antenatal check up, fully 100 more said yes than had cards.

Table 44: Mothers check up

	Frequency N=117	Percent
Doctor	32	27.4
Nurse/ANM	63	53.9
MCH workers	7	5.9
Traditional Birth Attendant	9	7.7
Community Health Worker	-	-
Auxiliary Health Workers	5	5.1
Other	1	0.9

Of 117 mothers who claimed they had a check up, 27.4% stated they had checked up with doctors, 53.9% indicated Nurse/ANM, 5.9% indicated Maternal Child Health Workers while 7.7% stated Traditional Birth Attendants (TBAs).

Of 117 mothers, 38 mothers recalled having one checkup, 29 mothers recalled two, 19 mothers recalled three times, and 31 recalled four or more.

Table 45: TT injections recalled by mothers

	Frequency	Percent
Had TT injection	119	39.7
Did not have	181	60.3
Total	300	100

When asked if they had TT injection when they were pregnant, 39.7% (119 of 300) mothers verbally claimed (recalled) that they had TT injection. Of 119 mothers, 27.7% (33 mothers) stated that they had TT

injection for one dose, 39.5% (47 mothers) had TT for two doses and 26.1% (31 mothers) had TT for three doses, 3.4% (4 mothers) for four doses and 3.4% (4 mothers) for five.

Table 46: Consumption of Iron Folic Acid Tablets

When asked if they consumed Iron Folic Acid Tablets when they were pregnant, 20.3% (61 mothers) responded that they had consumed the tablets.

	Frequency	Percent
Mothers who consumed Iron Folic Acid tablets	61	20.3
Did not consume	239	79.7
Total	300	100

Table 47: Duration of Mothers consuming Iron Folic Acid (IFA) Tablets

	Frequency N = 61	Percent
For 1 month	31	50.8
For 2 months	12	19.7
For 3 months	4	6.6
For 4 months	1	1.6
For 5 months	6	9.8
For 6 months	1	1.6
For 7 months	3	4.9
For 8 months	2	3.3
For 9 months	1	1.6
Total	61	100

Of the 61 mothers who consumed Iron Folic Acid Tablets, just over half consumed them for only one month. Only around one in four respondents took them for more than three months

Table 48: Knowledge on danger signs/symptoms during pregnancy

	Frequency N=300	Percent
Don't know	160	53.3
Swollen hands/ face/legs	26	8.7
Fever	24	8.0
Persistent vomiting	16	5.3
Blurred vision	9	3
Anemia	10	3.3
Rapid/fast breathing	10	3.3
Bleeding	4	1.3
High blood pressure	2	0.7
Failure to gain weight	3	1.0
Others: felt pain in abdomen	57	19.0

When asked to state the signs/symptoms occurring during pregnancy that would prompt the mother to seek advice/treatment, over half (53.3%) of mothers responded that they do not know. Based on the analysis, 10.3% (31 of 300) mothers knew at least two danger signs in pregnancy.

Multiple answer

L. Delivery and Newborn Care

When asked where they gave birth to their child, 83.3% of mothers responded that they gave birth in their homes, and another 8% stated they gave birth in their own separate room. Around 8% gave birth in a health facility.

Table 49: Place of child delivery

	Frequency N=300	Percent
Own home	250	83.3
Separate room at own house	24	8.0
Others' home	1	0.3
Hospital	14	4.7
Private clinic	6	2.0
Health Post/ Health Center	3	1.0
In the field on the way to hospital	1 1	0.3 0.3
Total	300	100

Table 50: Mothers taking advice/consulting in emergency for child delivery

Mothers were asked if they had discussed prior to delivery what to do during/after delivery and what to do in case of emergency. Approximately, 28% (84) mothers had done some form of birth planning. Just over one in four (30.9%) said they discussed seeking advice and help from a TBA. Around the same number discussed where to go in an emergency or for a difficult birth.

	Frequency N = 84	Percent
Take advice / help from TBAs	26	30.9
Where to go in difficulty	25	29.7
Arrange expenses for child delivery	12	14.3
Where to stay after delivery	12	14.3
Which transportation to be used	5	5.9
Helping person/organization for transportation	6	7.1
Who will do household work	4	4.8

Multiple answer

Table 51: Who assisted in child's delivery

	Frequency N=300	Percent
Untrained TBAs	95	31.7
Trained TBAs	25	8.3
Mother in law	86	28.7
Relatives/Neighbors/Sisters	62	20.7
Nurse/ANM	27	9.0
Hospital/Private clinic/Doctor	4	14.0
Helped themselves	29	9.7

The most frequently mentioned source of assistance in delivery was untrained TBAs (31.7%). The next most common was mother-in-law (28.7%) followed by relatives/neighbors/sisters (20.7%). Trained health providers accounted for 31.3% of assistance given. Almost ten percent of deliveries were unassisted.

Multiple answer

Table 52: What type of assistance received

The most common assistance received by delivering mothers was massage (60%). The next most common was cord cutting (39.3%), followed by bathing the baby (31.7%).

	Frequency N=300	Percent
Massage	180	60.0
Umbilical Cord cutting	118	39.3
Remove placenta	52	17.3
Bathe the baby	95	31.7
Give food	24	8.0
Consolation/patience	33	11
Cook things	10	3.3
Check internal organs	5	1.7
Help take out the baby during delivery	28	9.3

Multiple answer

Table 53: Cutting of umbilical cord

	Frequency	Percent
Hospital / Doctor	2	0.7
Nurse / ANM	25	8.3
MCHW	-	-
Untrained TBAs	90	30.0
Trained TBAs	21	7.0
Community Health Worker	1	0.3
Mother-in-law	37	12.3
Neighbors/relatives	15	5.0
Mothers themselves	106	35.3
Private clinic	3	1.0
Total	300	100

When asked who cut the child's umbilical cord, one out of three (35.3%) reported that they did it themselves. Just under another one out of three (30%) reported it was done by untrained TBAs. Mother-in-law were next most common (12.3%). Nurse, ANM, CHW and trained TBAs accounted for 8.3%.

Table 54: Materials used for cutting the cord

	Frequency	Percent
Cut by New Razor Blade	189	63.0
With Old Blade	31	10.3
Bamboo Blade	-	-
Sickle (Hashiya)	57	19.0
Others:		
Did not know	12	4.0
With scissors	5	1.7
Materials brought by TBAs	6	2
Total	300	100

When asked how the umbilical cord of the newborn was cut, 63% responded that they cut the umbilical cord with a new razor blade. Another 19% (57 mothers) reported that a sickle was used to cut the cord, while 10.3% (31 mothers) stated the cord was cut with an old razor blade. Five mothers indicated that the cord was cut by scissors.

Table 55: Use of Safer Home Delivery Kit (SHDK)

	Frequency	Percent
Used SDK	48	16.0
Did not use	226	75.3
Did not know SDK	26	8.7
Total	300	100

When asked, did mothers use Safer Home Delivery Kit (Sutkeri Samagri), 16% (48 mothers) reported they used SHDK/clean thread and steamed blade at the delivery.

Of the 48 mothers who said they used SHDK, 33.3% (16 mothers) responded that they got delivery kit materials from grocery shop (Kirana shop), 14.5% (7 mothers) claimed that they got from TBAs, 6.3% (3 mothers) stated from medical hall/medical shop.

Table 56: Source of SHDK

	Frequency N=48	Percent
From shop	16	33.3
Got from TBAs	7	14.5
Medical shop	3	6.3
Did not know	22	45.8

Table 57: Newborn care activities after the delivery

	Frequency N=300	Percent
Newborns were bathed after the delivery	256	85.3
Wrapped the newborn with warm clothes	157	52.3
Immediately breastfed	36	12.0
Cleaned face/nose	19	6.3
Cleaned around the Umbilical	32	10.7
Clean eyes	9	3.0
Other	30	10.0
Don't know	17	5.7

When asked what care mothers did after the delivery, 85.3% of the mothers reported that they bathed the newborn, 52.3% of the mothers wrapped the child with warm clothes, 12% of the mothers stated that they immediately breastfed while 10.7% of the mothers reported they cleaned the cord. Ten percent of the mothers massaged the newborn with oil. Some of the mothers (2.7%) said that they put the child in a basket in which rice is kept.
Multiple answer

Table 58: Providers of newborn care activities

	Frequency	Percent
Nurse/ANM	21	7.0
Mother-in-law	38	12.7
TBA (Trained)	15	5.0
TBA (Untrained)	86	28.7
Neighbors/sisters	12	4.0
Relatives	2	0.7
Self	125	41.7
Other: Private clinic	1	0.33
Hospital/doctor	-	-
MCHW	-	-
Total	300	100

Seven percent (21 of 300) of mothers said that Nurse/ANM provided newborn care after delivery; 28.7% (86 mothers) reported that untrained TBAs provided the newborn care whereas 5% (15 mothers) claimed that trained TBAs provided the newborn childcare.

Table 59: Mothers check up after delivery

Only around one in 17 mothers got a check up after delivery.

	Frequency N=300	Percent
Yes	17	5.7
No	283	94.3

Table 60: Who checked the mothers

	Frequency N=17	Percent
Hospital/ Doctor	7	41.2
Nurse/ANM	7	41.2
Trained TBA	3	17.6

The few who do got a check up preferred to use trained health providers.

Of the 17 mothers who had been checked, 15 mothers said that they got checked within two days while two stated after ten days.

Table 61: First check up after delivery

	Frequency N=17	Percent
Checked within two days after the delivery	15	88.2
Within 3-5 days	-	-
Within 5-9 days	-	-
After 10 days	2	11.8

Of 17 mothers who had health check up, 11 mothers claimed that during their health check up, their newborn child was also checked.

Table 62: Advice given during child check up

The main advice given during the examination was mainly related to protection from infection, bathing the baby, keeping the baby warm and breastfeeding.

	Frequency N=11	Percent
Protect from infection	3	27.3
Bath the baby timely	3	27.3
Visit HP in fever or when looks pale	1	9.1
About breastfeeding	2	18.2
Keep the baby warm	2	18.2
Immunization	-	-
Family planning	-	-

Table 63: Danger signs/symptoms requiring treatment after delivery

Description	Frequency N=300	Percent
Don't know	169	56.3
Fever	46	15.3
Excessive bleeding	53	17.7
Bad smelling discharge from vagina	7	2.3
Other:		
Pain in abdomen	52	17.3
Dizziness/headache	17	5.7
Placenta did not come out	9	3.0

When asked what danger signs/symptoms after delivery would cause them to seek advice or treatment, 17.7% responded excessive bleeding; 15.3% said fever; 17.3% said pain in the abdomen; 5.7% stated dizziness/headache; 2.3% stated bad smelling fluids coming from vagina and 3% claimed that if the placenta did not come out after the delivery

this would cause them to seek advice/treatment. Based on this analysis, 7% (21 of 300) mothers knew at least two danger signs that would require help or treatment.

Table 64: Mother's knowledge of neonatal sickness signs/symptoms

When asked how do you know your child is sick, 32% (96 mothers) said if the child could not suckle breastmilk properly; 10% (30 mothers) stated if the child had rapid/fast breathing; 1% (3 mothers) said if the child looked weak; 2.3% (7 mothers) stated if the child's eye is red and tears are coming from eyes; and one mother said if area around child's cord had become red. More than one out of three mothers (36.3%) did not know any signs/symptoms of child's sickness.

	Frequency N=300	Percent
Don't know	109	36.3
If child could not suckle breastmilk properly	96	32.0
If the child had rapid/fast breathing	30	10.0
If child looked weak	3	1.0
If child's eye is red and tears coming	7	2.3
If area around cord becomes red	1	0.3
Other: fever	57	19.0
Other: coughing	21	7.0

Multiple answer

Table 65: Vitamin "A" consumption within 45 days after delivery

	Frequency N=300	Percent
Consumed Vitamin "A"	76	25.3
Did not consume	216	72.0
Don't know	8	2.7

One out of four (25.3%) mothers reported that they had consumed Vitamin "A" during the 45 days after child's delivery.

M. Malaria

Table 66: Child had fever during last two weeks

	Frequency N=300	Percent
Child had fever during last two weeks	42	14.0
Did not have fever	250	83.3
Don't know	8	2.7
Child who had shaking fever with sweating and cold (Of 42 children who had fever)	12 (N = 42)	28.5

When asked if the child had fever during the last two weeks, 14% (42 mothers) responded that their child had a fever during last two weeks. Of the 42 children who had fever, 28.5% (12 children) had fever in alternate days and shaking fever with sweating and cold. Four of these children were taken to medical facilities for care (three to private clinics and one to hospital).

When asked how they protect themselves from mosquito bites, 74.7% (224 mothers) reported they use mosquito nets; 42.7% stated they use smoke through burning to drive mosquitoes away; 6% stated they burned mosquito coils while 2.7% of the mothers stated they cleaned the environment around their households to protect from mosquito bites. [Note that there is no comparable data on net use from other sources, and observation suggests that actual net use might be less than reported.]

Table 67: Protection from mosquito bites

	Frequency N=300	Percent
Use mosquito/bed net	224	74.7
Use screen/wire nets at doors/windows	4	1.3
Using smoke through burning	128	42.7
Burning mosquito coil	18	6.0
Cleaning environment	8	2.7

Multiple answers

Table 68: Households using mosquito net

Who uses mosquito net	Frequency N=224	Percent
Husband	72	32.1
Mother	91	40.6
Child	86	38.4
Mother-in-law	31	13.8
All family members	130	58.0

Of 224 mothers who use mosquito nets, 32.1% (72 mothers) reported that their husband used; 40.6% (91 mothers) stated they themselves used; 38.4% of the mothers stated their children used; while 13.8% of mothers stated that their mother-in-law used the mosquito net.

Multiple answers

ANNEX 1: QUESTIONNAIRE

Interview Date mm/dd/yy

Interviewer's name: _____

Supervisor's Name: _____

Checked Date: mm/dd/yy: ____/____/____

Name of the village: _____ Ward # _____ VDC/Municipality: _____

IDENTIFICATION:

Household Name:

Mother's Name & age: (Mother of the youngest child less than two years old)

Name: _____ Age: (In Years) ## _____

Ethnicity: _____ Did you migrate from another district? Y____ N____

If yes then the date of the migration (in years) ##

MUAC: (### cm) Hb: ### %

Name of the youngest child:

Name: _____ Age: (In months) _____

Date of birth: _____ Sex: _____ Weight: _____ Height: _____

MOTHER'S EDUCATION AND OCCUPATION

Questions

Answers

Can you read?

1 Illiterate

If literate then what is the level of education?

2 Not been to school but can read & write

3 Primary (1-5 class)

4 Middle (6-8 class)

5 Secondary (9-10 class)

6 Higher (above 10th class)

Do you work outside of the house to earn money?

(If no, circle '1')

1 No outside work

If yes, what kind of work do you do?

2 Handicrafts

3 Selling agriculture product /harvesting

4 Shop keeper/Street vendors

5 Service (GO/NGO/INGO)/household workers

6 Sell dairy products (milk, curd, ghee

7 Wage earner

8 Selling of livestock (sheep, goat, pig, chicken)

9 Others (specify)

Who takes care of (Name) when you are away from the home?

- 1 Mother (Respondent)
- 2 Husband
- 3 Brother /Sister
- 4 Relatives
- 5 Neighbors/friends
- 6 Maid
- 7 Nursery school
- 8 Leave alone at home
- 9. Mother-in-law
- 10. Father-in law/other family member
- 11. Others

NUTRITION /BREAST FEEDING

4. Are you breastfeeding (Name of child)?

- 1 Yes
- 2 No

If yes, go to Q.N. 6

5. Have you ever breastfed?

- 1 Yes
- 2. No

If No, go to Q.N. 9

6.How long after birth did you first put (Name) to the breast?

- 1 During the first hour of delivery
- 2 During 1to8 hours of delivery
- 3 More than 8 hours of Delivery
- 4 Don't remember
- 5. Others

7.Did you give (Name) the first milk within 3 days that came from your breast?

- 1 Yes
- 2. Squeezed & threw it away
- 3. Don't Know

8.For how long did you breastfeed (Name)

Month _____
(If less than one month, record "0" month)

9. Now I would like to ask you about the types of foods (Name) has been fed over the last seven days, including yesterday with number of times and number of days.

	# of days w/in last 7 days	# of times last day/night
A. Plain water	A	A
B Commercially produced infant formula?	B	B
C. Other milk such as tinned, powdered or fresh animal milk?	C	C
D. Fruit Juice	D	D
E. Any other liquids such as sugar water flavored water, - tea, coffee, carbonated drinks, infusions, or soup broth?	E.	E.
F. Any food made grains (e.g. millet, sorghum, maize, rice, wheat porridge, or other local grains)?	F.	F.
G. Pumpkin, red or yellow yarn or squash, carrots or red sweet potatoes?	G.	G.
H. Any other food made from roots or tubers (e.g. white potatoes, white yarns, manioc, cassava)	H.	H.
I. Any green leafy vegetables?	I.	I.
J. Mango, Papaya (or other local Vitamin A rich fruits)?	J.	J.
K. Any other fruits and vegetables (e.g. bananas, apples/sauce, avocados, tomatoes)?	K.	K.
L. Meat, poultry, fish, shellfish, or eggs?	L.	L.
M. Citrus fruits (lemon/orange)	M.	M.
N. Any food made from legumes (e.g. lentils, cheese or yogurts, beans, soybeans, pulses, or peanuts)?	N.	N.
O. Cheese or yogurt?	O.	O.
P. Any food made with oil, fat, or butter?	P.	P.

11. At what age should a mother start giving her child foods or liquids in addition to breast milk?

Month_____

12. What should those additional foods be?

- 1 Don't Know
- 2 Add oil/ghee/butter to / food
- 3 Green leafy vegetables
- 4 Fruits
- 5 Meat/ fish
- 6 other

13. Did (NAME) receive Vitamin 'A' in the last six months? (Ask by showing the Vit. 'A' cap.)

- 1 Yes
- 2 No
- 3 Don't Know

14. Do know about Superflour (Sarbotam Pitho)?

- 1 Yes
- 2 No

If yes, how do you prepare it?

- 1 Correct preparation
- 2 Wrong preparation

CHILD GROWTH MONITORING AND MATERNAL AND CHILD ANTHROPOMETRY

15. Was (Name) weighed at birth?

- 1 Yes
- 2 No
- 3 Don't Know

16. Does (Name) have a growth-monitoring card?

- 1 Yes
- 2 No

If yes: May I see it please?

3 Didn't show

17. Look at the growth monitoring card and record the following information:

Has the child been weighed in the last four months?

- 1 Yes
- 2 No

DIARRHEAL DISEASES

18. After how many loose stools do you consider (NAME) to be suffering from diarrhea?

1. _____ ### loose stool episodes

19. Has (Name of the child) had diarrhea in the last two weeks?

- 1 Yes
 - 2 No
 - 3 Don't know
- (If No, go to Q.N 26)

20. What did you do (Name) to treat diarrhea?

- 1 Did nothing
- 2 Home made fluid
- 3 Sugar, salt, solution
- 4 Cereal based ORT
- 5 Injection
- 6 Rice Starch
- 7 Antibiotics or anti-diarrheal
- 8 Herbal Medicine
- 9 Infusion such as saline
- 10 Others

21. (Name) Breastfeeding during dehydration
- 1 more than usual
 - 2 Same as usual
 - 3 less than usual
 - 4 Stopped completely
 - 5 Child not breastfed
22. Was (Name) offered less than usual to eat, about the same amount, or more than usual to eat?
- 1 less
 - 2 Same
 - 3 More
 - 4 Don't Know
23. During (Name) diarrhea did you continue to provide solids/semi solid foods?
- 1 More than usual
 - 2 Same as usual
 - 3 Less than usual
 - 4 Stopped completely
 - 5 Only breast milk
24. Seek treatment (advice) from someone for (Name) for diarrhea?
- 1 Yes
 - 2 No
25. Whom did you seek advice or treatment for diarrhea?
- 1 General Hospital
 - 2 Health post/sub health post/PHC
 - 3 Mobile clinic
 - 4 Pharmacy
 - 5 Community Health Workers (VHW/MCHW)
 - 6 Faith healer
 - 7 TBA/FCHV
 - 8 Medical Clinic
 9. Relatives, neighbors and friends
 - 10 Other
26. What sign/symptoms would cause you to seek advice or treatment (Name) diarrhea?
- 1 Don't Know
 - 2 Vomiting
 - 3 Fever
 - 4 Dry mouth, sunken eyes, sunken fontanel
 5. Continuation of loose motion (14 days more)
 6. Blood in stool
 - 7 Loss of appetite
 - 8 Weakness or tiredness
 - 9 Other
27. What are the signs of diarrheal dehydration?
- 1 Eyes look dull and sunken
 - 2 Tears come
 - 3 Dry tongue
 - 4 Thirsty
 - 5 Skin becomes dry and when pulled goes back slowly
 - 6 Other

28. Do you know how to prepare ORS?

- 1 Yes
- 2 No

29 If yes, let the mother make it.

- 1 Prepares correctly
- 2 Prepares incorrectly

30. a) Do you have a latrine in your home?

- 1 Yes
- 2 No

If yes, ask the type?

Type

If yes, Do you use it?

- 1 yes
- 2 No

b) Does (NAME) receive deworming tablets every six months?

- 1 Yes
- 2 No

ACUTE RESPIRATORY INFECTION

31. Has (Name) had an illness with a cough at any time in the last 2 weeks?

- 1 Yes
- 2 No
- 3 don't know (If No/Don't Know, go to Q.N. 35)

32. When (Name) had illness with a cough, did he/she breathe faster than usual with short, fast breaths?

- 1 Yes
- 2 No
- 3 Don't Know

33. Did you seek advice or treatment for the cough/ fast breathing?

- 1 Yes
- 2 No If No, go to Q.N. 35

34. Where and with whom did you seek advice or treatment?

- 1 Hospital
- 2 Health post/sub H.P
- 3 Primary health care center
- 4 Private Clinics
- 5 Community Health Workers (VHW/MCHW)
- 6 TBA
- 7 FCHV
- 8 faith healers
- 9 Relatives/Friends
- 10 Ayurvedic Vaidya
- 11 Health workers (ANM, CMA, MCHW)
- 12 Medical Hall

35. What signs/symptoms does a child with pneumonia (Local term) have?

- 1 Don't Know
- 2 Fast or difficult breathing
- 3 Chest indrawing
- 4 Fever
- 5 Other

36. What are the signs/symptoms of respiratory infection that would cause you to take (Name) to a health facility?

- 1 Don't Know
- 2 fast or difficult breathing
- 3 Chest indrawing
- 4 Loss of appetite
- 5 Fever
- 6 Cough
- 7 other

37. Where do you seek treatment first when your child (Name) suffers with Pneumonia?

- 1 Hospital
- 2 ANM/MCHW
- 3 Private clinics

Second Time?

- 1 Hospital
- 2 ANM/MCHW
- 3 Private Clinic

MATERNAL HEALTH

Did you see anyone for antenatal care while you were pregnant with (Name)? (e.g. HP, mobile clinic or others)

- 1. Yes
- 2. No

39 a) Do you have a maternal health card?

- 1 Yes
- 2 No

(If doesn't have a card, go to Q.N. 40)

b) Look at the card and record the number of antenatal visits while pregnant (Name)

1 Number of visits _____

c) Look at the card and record the number of TT injections while pregnant (Name)

1 Number of injection_____

40. During pregnancy (Name) did you make medical check up?

- 1 Yes
- 2 No

(If no, go to Q.N.42)

(If yes, whom did you see)

- 1 Doctor
- 2 ANM
- 3 MCHW
- 4 TBA
- 5 Community Health Worker
- 6 Other
- 7 No one

41. How many times you make antenatal check up? _____Times

42. Did you take TT injection during pregnancy?
- 1 Took injection
 - 2 Didn't Take
 - 3 Don't Know
 4. Numbers
43. During your Pregnancy did you consume iron pills/folic acids to keep you strong?
- 1 Yes
 - 2 No **If No, go to Q.N 45**
44. If yes, how long did you receive?
- _____Months/day
45. What danger signs/symptoms during pregnancy and delivery require medical advice/help/treatment?
- 1 Don't Know
 - 2 Fast and difficult breathing
 - 3 Bleeding
 - 4 Swelling on legs, arms, face
 - 5 High fever
 - 6 Blood pressure
 - 7 Blurred vision
 - 8 Anemia
 - 9 Persistent vomiting
 - 10 Failure to gain weight during pregnancy
 11. Others

DELIVERY AND NEWBORN CARE

46. Where did you give birth?
- 1 Home
 - 2 In separate room of the house
 - 3 Other's home
 - 4 Cow shed
 - 5 Shed
 - 6 Veranda
 - 7 Hospital
 - 8 Private clinic
 - 9 Health post
 - 10 Health Institute
 - 11 HP/Sub HP
 12. Other
47. Was it pre-decided, where to go for delivery (Name) to take the help of family in difficulty?
- 1 Yes
 - 2 No
 - 3 Don't know
48. If Pre-decided with the family, what was the decision?
- 1 To take the help of TBA
 - 2 To arrange expenses for delivery
 - 3 Where to stay after delivery
 - 4 Where to go in difficulty
 - 5 Which transportation to be used
 - 6 Helping person/organization for transportation
 - 7 Whom to conduct the household work
 - 8 Other

49. Who assisted you with the delivery?

- 1 Hospital/doctor
- 2 Nurse/ANM
- 3 MCHW
- 4 Any other person
- 5 Trained TBA
- 6 Untrained TBA
- 7 Community Health worker
- 8 Mother-in-law/neighbor/relatives
- 9 Self
- 10 Other

50. What type of assistance you got from (Name)?

- 1 Massage
- 2 To cut the cord
- 3 To cut the Placenta
- 4 bathe the baby
- 5 Give food in time
- 6 Consolation/Patience
- 7 Cook
- 8 Check up the internal organs
- 9 Help to take out the baby during delivery
- 10 other

51. At the delivery of (Name) who tied and cut the cord?

- 1 Hospital/doctor
- 2 Nurse/ANM
- 3 MCHW
- 4 Any other person
- 5 TBA (Trained)
- 6 TBA (Untrained)
- 7 Community health worker
- 8 Mother-in-law/ Neighbor
- 9 Sister/Relatives
- 10 Self
- 11 other

52. What instrument was used to cut the cord?

- 1 New razor blade
- 2 Old blade
- 3 Bamboo blade
- 4 Sickle
- 5 Spearhead
- 6 Knife
- 7 Other

53. Was a safe birth kit used during this delivery (Name)?

- 1 Yes
- 2 No
- 3 Don't Know/not certain

If No/Don't know, go to Q.N 55

54. From where was the safe birth kit brought?

55. What type of immediate care given to the newborn?

- 1 Don't Know
- 2 Bathed
- 3 Wrapped with warm cloth
- 4 Fed the newborn immediately
- 5 Cleaned face/Nose
- 6 Clean eyes
- 7 Clean
- 8 other

56. Who performed this care?

- 1 Hospital/doctor
- 2 Nurse/ANM
- 3 MCHW
- 4 Any other person
- 5 TBA (Trained)
- 6 TBA (Untrained)
- 7 Community health worker
- 8 Mother-in-law/neighbor
- 9 Sister/Relatives
- 10 Self
- 11 other

57. After (Name) was born, did anyone check on your health?

- 1 Yes
- 2 No

(If No, go to Q.N.62)

58. By whom were you Checked?

- 1 Hospital/doctor
- 2 Nurse/ANM
- 3 MCHW
- 4 Trained TBA
- 5 Other

59. How many days or weeks after the delivery did the first check take place?

- 1 Within two days
- 2 Within 3-5 days
- 3 Within 5-9 days
- 4 After 10 days
- 5 Other

60. At that time, did the person Check on (Name)'s health as well?

- 1 Yes
- 2 No
- 3 Don't Know

61. If checked, what advice was given?

- 1 Protect from Infection
- 2 bathe the baby timely
- 3 Visit H.P in fever or when looks pale
- 4 About breastfeeding
- 5 Keep the baby warm
- 6 Immunization
- 7 Family Planning
- 8 Other

62. What danger signs/symptoms requires medical advice/help/treatment after delivery?

- 1 Don't Know
- 2 Fever
- 3 Excessive bleeding
- 4 Smelly vaginal discharge
- 5 Other

63. What signs shows that the newborn is ill?

- 1 Don't Know
- 2 Poor feeding
- 3 fast or difficult breathing
- 4 Not active
- 5 Redness around the cord
- 6 Red /discharging eyes
- 7 Other

64. Did you take a Vitamin 'A' capsule within 45 days of delivering (Name)?

- 1 Yes
- 2 No
- 3 Don't Know

MALARIA

65. Has (Name) been ill with fever in the last two weeks?

- 1 Yes
- 2 No
- 3 Don't know

(If no, don't know, go to Q.N.70).

66. If yes, did your child (Name) experience chilled fever/sweating and febrile condition?

- 1 Yes
- 2 No
- 3 Don't know

(If NO, Don't know, go to Q.N. 70)

67. Was (Name) taken to a health facility?

- 1 Yes
- 2 No

(If NO, go to Q.N. 70)

68. If Yes, where was (Name) taken?

- 1 Hospital/doctor
- 2 Nurse/ANM/CMA
- 3 MCHW
- 4 Private clinic
- 5 Community health worker
- 6 Self
- 7 No where
- 8 Other

69. Can I see the Prescription?

(See the prescription and write down the name of medicine.)

- 1. _____
- 2. _____

70. What do you do to prevent getting Malaria?

- 1 Use bed net
- 2 Use wire nets to the doors and windows
- 3 Make smoke
- 4 Cover the pits
- 5 Use Mosquito coils
- 6 Clean the surroundings
- 7 Other

71. If use bednet, who else use it?

- 1 Husband
- 2 (Name of Child)
- 3 Self
- 4 Mother-in-law
- 5 Other

Does the mother have any additional children under five? If yes, please record the following information for all children under five:

S.N.	Name of Child	Age	Weight	Height	Remarks
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ANNEX 2: LIST OF SURVEY TEAM MEMBERS

Consultant and Survey Trainer: Mr. Charles Pradhan

Core Team Members:

1. Mr. Madan Raj Thapa, Project Manager, CSXV Project Kanchanpur
2. Mr. Ram Bahadur Baniya, Community Health Specialist, CARE Nepal, Central Office, Kathmandu

Survey Supervisors: (All CARE Nepal CSXV Project staff)

1. Ms. Indra Ghimire, Community Health Officer
2. Ms. Pramila Devkota, Health Supervisor
3. Ms. Sumitra Ghimire, Health Supervisor
4. Ms. Ganga Sapkota, Health Supervisor
5. Ms. Anju Gurung, Health Supervisor

List of interviewers (CARE Nepal CSXV Project Staff)

1. Laxmi Adhikari, Community Health Extensionist
2. Manju Kunwar, Community Health Extensionist
3. Ram Kaji Thapa, Family Health Extensionist
4. Ek Narayan Lamsal, Family Health Extensionist
5. Krishna Pal Bohara, Family Health Extensionist
6. Hari Lal Dhakal, Family Health Extensionist
7. Manoj Babu Dhakal, Family Health Extensionist
8. Sita Sunar, Community Health Extensionist
9. Sanu Maya Khadaka, Community Health Extensionist
10. Krishna Chaudhary, Community Health Extensionist
11. Champi K.C., Community Health Extensionist
12. Rachana Khadaka, Community Health Extensionist
13. Saraswati Bhujel, Community Health Extensionist
14. Durga Sapkota, Community Health Extensionist
15. Shanti Raut, Community Health Extensionist
16. Kusum Shahi, Community Health Extensionist
17. Savitri Shrestha, Community Health Extensionist

Interviewers from District Public Health Office (DPHO)

18. Jayanti Chand
19. Bishnu Dhugana
20. Parvati Chaudhary
21. Nilawati Bhatt
22. Sanjita Singh
23. Gita Gajurel
24. Hari Dutta Bhatt

Interviewer from Nepal National Social Welfare Association

25. Madhivi Shah

ANNEX 3: POPULATION DATA USED TO SELECT 30 CLUSTERS

Kanchanpur District

SI = 11743
RN = 09464

VDC	Ward	Population	Cum. population	Selected cluster
1. Chandani	1	1080	1080	
	2	1486	2566	
	3	1764	4330	
	4	1874	6204	
	5	820	7024	
	6	2186	9210	
	7	3656	12869	cluster 1 09464
	8	879	13748	
	9	824	14572	
2. Dodhara	1	2627	17199	
	2	1420	18619	
	3	1597	20216	
	4	1189	21405	cluster 2 21207
	5	2125	23530	
	6	2194	25724	
	7	1791	27515	
	8	2023	29538	
	9	1787	31325	
3. Suda	1	1225	32550	
	2	1300	33850	cluster 3 32950
	3	1041	34891	
	4	2754	37645	
	5	3116	40761	
	6	2609	43370	
	7	1892	45262	cluster 4 44693
	8	1122	46384	
	9	1569	47953	
4. Daijee	1	2110	50063	
	2	959	51022	
	3	2576	53598	
	4	4090	57688	cluster 5

				56436
	5	1882	59570	
	6	2499	62069	
	7	1263	63332	
	8	1960	65292	
	9	2044	67336	
5. Krishnapur	1	4494	71830	cluster 6 68179
	2	3198	75028	
	3	1527	76555	
	4	3404	79959	cluster 7 79922
	5	2128	82087	
	6	2820	84907	
	7	708	85615	
	8	2481	88096	
	9	1270	89366	
6. Dekhabuli	1	1774	91140	
	2	1047	92187	cluster 8 91665
	3	1906	94093	
	4	1477	95570	
	5	1088	96658	
	6	193	96851	
	7	565	97416	
	8	1748	99164	
	9	3131	102295	
7. Shankarpur	1	902	103197	
	2	413	103610	cluster 9 103408
	3	549	104159	
	4	895	105054	
	5	453	105507	
	6	795	106302	
	7	885	107187	
	8	804	107991	
	9	475	108466	
8. Laxmipur	1	1130	109596	
	2	600	110196	
	3	1159	111355	
	4	1130	112485	
	5	771	113256	
	6	943	114199	

	7	1371	115570	cluster 10 115151
	8	957	116527	
	9	3467	119994	
9. Raikworbichwa	1	1165	121159	
	2	761	121921	
	3	1126	123046	
	4	2041	125087	
	5	2400	127487	cluster 11 126894
	6	1048	128535	
	7	1412	129947	
	8	2058	132005	
	9	1571	133576	
10. Parasan	1	692	134268	
	2	1059	135327	
	3	1316	136643	
	4	975	137618	
	5	982	138600	
	6	1047	139647	cluster 12 138637
	7	2075	141722	
	8	1476	143198	
	9	800	143998	
11. Kalika	1	1286	145284	
	2	1221	146505	
	3	568	147073	
	4	418	147491	
	5	1970	149461	
	6	2823	152284	cluster 13 150380
	7	1201	153485	
	8	1784	155269	
	9	1593	156862	
12. Rautali Bichuwa	1	942	157804	
	2	812	158616	
	3	481	159097	
	4	650	159747	
	5	71	159818	
	6	487	160305	

	7	1300	161605	
	8	1430	163035	cluster 14 162123
	9	1137	164172	
13.Rampur Bilaspur	1	2484	166656	
	2	1287	167943	
	3	1517	169460	
	4	1023	170483	
	5	1200	171683	
	6	1568	173251	
	7	2463	175714	cluster 15 173866
	8	1150	176864	
	9	3185	180049	
14. Pipladi	1	5007	185056	
	2	2500	187556	cluster 16 185609
	3	7000	194556	
	4	2200	196756	
	5	798	197554	cluster 17 197352
	6	937	198491	
	7	1486	199977	
	8	1287	201264	
	9	9672	210936	cluster 18 209095
15. Baisebichwa	1	1469	212405	
	2	582	212987	
	3	526	213513	
	4	915	214428	
	5	1684	216112	
	6	926	217038	
	7	766	217804	
	8	956	218760	
	9	961	219721	
16. Shreepur	1	1941	221662	cluster 19 220838
	2	2268	223930	
	3	1527	225457	
	4	2226	227683	
	5	2338	230021	

	6	1824	231845	
	7	3054	234899	cluster 20 232581
	8	1341	236240	
	9	1046	237286	
17. Beldandi	1	1557	238843	
	2	1573	240416	
	3	2272	242688	
	4	808	243496	
	5	1161	244657	cluster 21 244324
	6	632	245289	
	7	1716	247005	
	8	700	247705	
	9	2657	250362	
18. Tribhuvanbarti	1	1161	251523	
	2	839	252362	
	3	900	253262	
	4	1313	254575	
	5	1456	256031	
	6	1487	257518	cluster 22 256067
	7	845	258363	
	8	1566	259929	
	9	1196	261125	
19. Jhalari	1	-	261125	
	2	2757	263882	
	3	742	264624	
	4	2800	267424	
	5	1767	269191	cluster 23 267810
	6	1540	270731	
	7	1350	272081	
	8	-	272081	
	9	3903	275984	
20. Municipality	1	2806	278790	
	2	4573	283363	cluster 24 279553
	3	4079	287442	
	4	3568	291010	

	5	2908	293918	cluster 25 291296
	6	6060	299978	
	7	3770	303748	cluster 26 303039
	8	4044	307792	
	9	4765	312557	
	10	7393	319950	cluster 27 314782
	11	3485	323435	
	12	2587	326022	
	13	4579	330601	cluster 28 326525
	14	2797	333398	
	15	3071	336469	
	16	2128	338597	cluster 29 338268
	17	1588	340185	
	18	9041	349226	
	19	3071	352297	cluster 30 350011

ANNEX 4:
KPC Supervisors/Interviewers Training Schedule
Jan, 03 - 05, 2000
Mahendranagar

Day 1	Day 2	Day 3	Day 4
<p style="text-align: center;">AM</p> <ul style="list-style-type: none"> • Inauguration/ Few words DHO/PM • Opening / Introduction, objective/ purpose of the KPC survey/ cluster sampling method 	<p style="text-align: center;">AM</p> <ul style="list-style-type: none"> • Review of previous day session • Interviewing, principle/ technique • Questionnaire review 	<p style="text-align: center;">AM</p> <ul style="list-style-type: none"> • Interviewing practice/ feed back • Practice of measurement of Hb(%), weight/ height • Overview of cluster sampling/ selection/ household selection process 	<p style="text-align: center;">AM</p> <ul style="list-style-type: none"> • Group review of Field test • Final modification to questionnaires
<p style="text-align: center;">PM</p> <ul style="list-style-type: none"> • What is our job • Interviewing principles/ techniques 	<p style="text-align: center;">PM</p> <ul style="list-style-type: none"> • Interviewing demonstration • Role play interview/ feed back • Practice interview/ feed back • Practical training on Measurement of Hemoglobin / weight / height 	<p style="text-align: center;">PM</p> <ul style="list-style-type: none"> • Preparation for field exercise • Field exercise • Core Team Review questionnaires 	<p style="text-align: center;">PM</p> <ul style="list-style-type: none"> • Team divisions and cluster sites • Final Team Assignment • Final preparation of survey • Movement to Initial Cluster Sites

ANNEX 5: BIBLIOGRAPHY

1. Johns Hopkins University, School of Public Health, Department of International Health, Methodology and Sampling issues for KPC surveys, November 30, 1999.
2. Save the Children/US, Nepal Field office, CS XI Mid-Term KPC Survey Report, August 1997.
3. Plan International Nepal, Rautahat/Bara Child Survival XIII Project, Nepal, Report of the KPC, October 1997.
4. The 1996 Nepal Family Health Survey Report.
5. Nepal Multiple Indicator Surveillance (NMIS) Health and Nutrition –Cycle 1, January to March, 1995.
6. CARE/Child Survival Project Proposal Document, Kanchanpur District of Nepal, December 4, 1998